

Content Area & Materials	Learning Objectives	Tasks	Check-in Opportunities	Submission of Work for Grades	
<p>7th Grade Math</p> <p>Paper Packet</p> <ul style="list-style-type: none"> Lesson 16-1, 16-3, and 16-4 Notes Lesson 16-1, 16-3, and 16-4 Homework <p>Online Work</p> <ul style="list-style-type: none"> Lesson 16-1, 16-3, and 16-4 Videos Lesson 16-1, 16-3, and 16-4 Digits Assignments 	<p>Essential Question:</p> <ol style="list-style-type: none"> In what situations is conducting an experiment a good way to determine the probability of an event? How can you evaluate the reasonableness of an experimental probability? <p>Students will...</p> <ul style="list-style-type: none"> Determine the likelihood of an event occurring Calculate experimental and theoretical probabilities Use probability to predict future outcomes 	<p>Paper Packet</p> <ul style="list-style-type: none"> Review the notes Complete the homework assignments <p>Online Work</p> <ul style="list-style-type: none"> Watch the videos Complete the Digits assignments 	<p>Mrs. Wright will be available during office hours at the times indicated below. You can reach Mrs. Wright during these office hours via:</p> <ul style="list-style-type: none"> Zoom link provided via email Email: mwright@tusd.net Phone number: (209) 597-8776 	<p>Students are not required to submit work for Week 5. However, they are strongly encouraged to complete the assignments for their own benefit.</p>	
<p>Scaffolds & Supports</p> <p>The notes/videos contain definitions, examples, and steps to follow when solving problems.</p>					
<p>Teacher Office Hours</p>	<p>Monday 9-10 am and 3-4pm</p>	<p>Tuesday 9-10 am and 3-4pm</p>	<p>Wednesday 9-10 am and 3-4pm</p>	<p>Thursday 9-10 am and 3-4pm</p>	<p>Friday 9-10 am and 3-4pm</p>

- Lesson 16-1 Video: <https://www.loom.com/share/02c095f51d694df384fe1fd38d6ce0a9>



Lesson 16-1 Video

Check out a video I made via Loom

www.loom.com

- Lesson 16-3

Video: <https://www.loom.com/share/d1ab2a2eeec14f2488135b99b97fa99a>



Lesson 16-3 Video

Check out a video I made via Loom

www.loom.com

- Lesson 16-4

Video: <https://www.loom.com/share/5797edda81ec45378e754b13ac2da944>



Lesson 16-4 Video

Check out a video I made via Loom

www.loom.com

- Morning Office Hours (Monday-Friday, 9-10):

<https://zoom.us/j/346712980?pwd=ZmxaN1ZramsxRGVnWU41a1dzMW5JZz09>

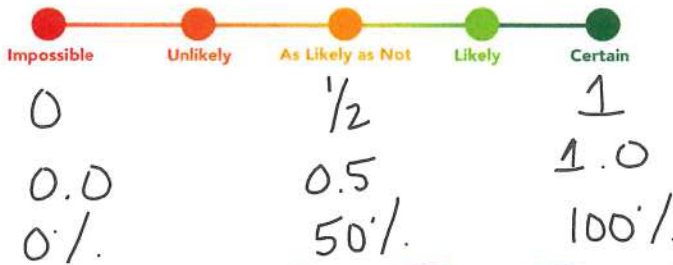
Meeting ID # is 346-712-980
Password is 213494

- Afternoon Office Hours (Monday-Friday, 3-4):
<https://zoom.us/j/171825496?pwd=eVJHMFpIRzFiS2RDT25RSHhvcjM0dz09>

Meeting ID # is 171-825-496
Password is 892194

Likelihood & Probability

Probability is a number from zero to one that describes the likelihood of an event occurring.



It can be expressed as a fraction, a decimal, or a percent.

EX: ①

The probability of choosing a flag with only two colors is 0.15. What is this probability written as a fraction and as a percent?



$$0.15 = \frac{15 \div 5}{100 \div 5} = \frac{3}{20}$$

Say the decimal out loud the right way. Then simplify the fraction.

$$0.15 = 15\%$$

Move the decimal point 2 spaces to the right.

This is an unlikely event.

EX: ②

There are 2,425 participants in a national phone survey that includes residents from every state. There is an 8% probability that a participant lives in a state that begins with the letter W. How many participants are expected to live in a state that begins with W?

$$\begin{array}{r} 2425 \\ \times 0.08 \\ \hline 194.00 \end{array}$$

194 participants

$$8\% = 0.08$$

Turn your percent into a decimal & multiply it by the total # of participants.

Lesson 16-1 Homework

1. Suppose you have a bag of colored plastic disks and you choose one without looking. The probability the disk you choose is green is $P(\text{green}) = \frac{25}{50}$
 - a) Write this probability as a decimal.
 - b) What best describes the probability?
 - A. as likely as not
 - B. likely
 - C. unlikely
2. Suppose you have a bag of colored elastic bands and you choose one without looking. The probability the elastic band you choose is red is $P(\text{red}) = 0.35$
 - a) Write this probability as a percent and a fraction.
 - b) What best describes the probability?
 - A. as likely as not
 - B. unlikely
 - C. likely
3. The probability that a student guesses the correct answer to a five-choice multiple choice question is $P(\text{correct}) = 0.2$ How many correct answers should a student expect to guess on a test with 60 five-choice multiple choice questions?
4. The probability of parents passing on a particular trait to their child is 0.28.
 - a) Write this probability as a percent and a fraction.
 - b) What best describes the probability?
 - A. as likely as not
 - B. likely
 - C. unlikely
5. After many studies, a researcher finds that the probability of a word recognition program correctly interpreting a hand-written word is $\frac{9}{10}$ How many words would the researcher expect the program to interpret correctly out of 40 words?
6. To play a certain board game, the players roll 3 six-sided number cubes. The probability that the sum of the 3 numbers is 13 is $\frac{7}{72}$ If the players roll the number cubes 648 times during a game, how many times should the players expect the sum 13 to occur?

Relative Frequency & Experimental Probability

$$\text{Relative Frequency} = \frac{\# \text{ of times an event occurs}}{\text{total } \# \text{ of trials}}$$

EX: ①

The table shows one class's results for spinning the spinner 40 times. What is the relative frequency of the event "spin a number less than 4"?



Experiment Table				
Outcome	1	2	3	4
Frequency	10	12	4	14
Number of Trials: 40				

13 out of every 20 spins will land on a # less than 4.

$$\text{Relative Frequency} = \frac{10 + 12 + 4}{40} = \frac{26 \div 2}{40 \div 2} = \boxed{\frac{13}{20}}$$

EX: ②

Find the experimental probability that a customer will bring reusable bags.

Answers to "What type of bag would you like?"

Type of Bag	Number of Customer Requests
Plastic	18
Paper	6

Customer's own reusable bag

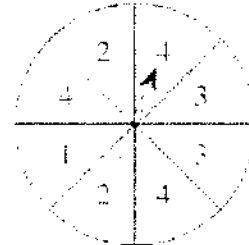
$$P(\text{reusable bags}) = \frac{8}{18 + 6 + 8} = \frac{8 \div 8}{32 \div 8} = \boxed{\frac{1}{4}}$$

1 out of every 4 customers will bring a reusable bag.

Lesson 16-3 Homework

1. The table shows the results for spinning the spinner 80 times. What is the relative frequency for the event “spin a 3”? Simplify your answer

Experiment Table					
Outcome	1	2	3	4	Number of Trials
Frequency	8	22	18	32	80



2. A seventh grade class rolls a number cube 50 times. The number cube has sides labeled 1 through 6. The table shows the results. Find the relative frequency for the event “roll a number less than 4.” Simplify your answer.

Number Cubes							
Outcome	1	2	3	4	5	6	Number of Trials
Frequency	6	4	8	12	10	10	50

3. The table shows the results of a survey of 100 people selected at random at an airport. Find the experimental probability that a person selected at random is going to City E. Simplify your answer.

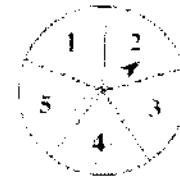
Airport Destinations	
Destination	Number of Responses
City A	28
City B	34
City C	16
City D	14
City E	8

4. A 12-sided solid has faces numbered 1 to 12. The table shows the results of rolling the solid 200 times. Find the experimental probability of rolling a number greater than 10. Simplify your answer.

Results													
Number Rolled	1	2	3	4	5	6	7	8	9	10	11	12	Total
Frequency	16	14	15	15	16	15	16	31	16	12	16	18	200

5. The table shows one student's results from spinning the spinner 26 times. Find the relative frequency for the event "spin a number greater than or equal to 2."

Spinner Frequency						
Outcome	1	2	3	4	5	Number of Trials
Frequency	7	5	5	5	4	26



6. The table shows the letter grades in science class for a random sample of 300 eighth grade students. Find the relative frequency of each letter grade to complete the table.

Letter Grades		
Grade	Frequency	Relative Frequency
A	21	
B	45	
C	141	
D	54	
F	39	
Total	300	1.00

7. The results of a survey of 100 students graduating high school are shown in the table. Find the experimental probability that a student selected at random plans to take a year off before college or has no plans for college. Simplify your answer.

College Plans	
Response	Number of Students
Go to community college	25
Go to a 4-year college	46
Take a year off before college	13
Go to trade school	13
Do not plan to go to college	3

8. Your friend is playing a game where he rolls a number cube labeled 1 through 6 and spins the spinner. He records the sum of the numbers on the cube and spinner. The results are shown in the table. Find the relative frequency of "a sum greater than 4 and less than 9."

Game Results										
Sum	2	3	4	5	6	7	8	9	10	Number of Trials
Frequency	3	6	8	9	10	11	8	5	3	63



Theoretical Probability

Theoretical probability is when you find the probability of an event through reasoning and NOT through experimentation.

$$P(\text{event}) = \frac{\# \text{ of favorable outcomes}}{\# \text{ of possible outcomes}}$$

EX: ①

Action: One spin of the spinner

Find the probability that the spinner stops on each type of sector.

Red $\frac{3}{8}$	A number less than 10 $\frac{8}{8} = 1$
Red, with odd number $\frac{1}{8}$	Yellow $\frac{0}{8} = 0$
Green $\frac{2}{8} = \frac{1}{4}$	Blue, with odd number $\frac{2}{8} = \frac{1}{4}$

EX: ②

In one family, a child's chore for the day is chosen at random. The table shows the results of using the spinner to simulate 99 days of chores. For which chore is the number given by the simulation closest to the number predicted by theoretical probability?

Experimental

Chore Simulation	
Red	55
Blue	32
Yellow	12
Total	99

Experimental

vs. Theoretical

Red = $\frac{55}{99} = 0.\overline{5}$

Red = $\frac{1}{3} = 0.\overline{3}$

Blue = $\frac{32}{99} = 0.\overline{32}$

Blue = $\frac{1}{3} = 0.\overline{3}$

Yellow = $\frac{12}{99} = 0.\overline{12}$

Yellow = $\frac{1}{3} = 0.\overline{3}$

what actually happens in real life

what you expect to happen

Lesson 16-4 Homework

1. Find the theoretical probability of the event $P(12)$ when rolling a 12-sided die.
2. Find the theoretical probability of the event $P(\text{less than } 8)$ when rolling a 12-sided die.
3. A class is flipping a coin to see what the probability of getting heads is. The class flips a coin 48 times and heads comes up 35 times and tails comes up 13 times.
 - a) What is the experimental probability of getting heads?
 - b) What is the theoretical probability of getting heads?
4. At school there are the same number of boys and girls. A student is chosen at random to raise the flag.
 - a) How many times is it expected that a boy will raise the flag over 42 days of school?
 - b) The results of a simulation using a coin are shown in the table. How do the results from the simulation compare to the expected number of times?

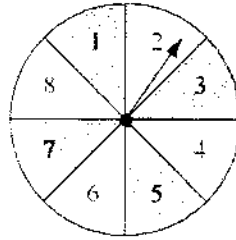
Simulation Results		
Girls (Heads)	Boys (Tails)	Total
15	27	42

5. Richard, Lenny, Hanne, and Rakel together buy one season ticket to see a basketball team.
 - a) If there are 52 games included, what is the expected amount of games that Richard and Lenny will see?
 - b) The data from a simulation of the situation is shown in the table. The values represent the number of times each person goes to a game. How do the results from the simulation compare to the expected amount of games?

Simulation Results				
Richard	Lenny	Hanne	Rakel	Total
18	8	16	10	52

6. Find the theoretical probability of the event $P(15)$ when rolling a 16-sided game piece.

7. The spinner is divided into eight equal parts. Find the theoretical probability of landing on section(s) $P(\text{greater than } 5)$ of the spinner.



8. There are 60 marbles in the bag. The bag has 23 green marbles, 28 red marbles, and 9 yellow marbles. Silas selects a marble from the bag 20 times, and of those he picks a green marble 15 times.
- What is the experimental probability of selecting a green marble?
 - What is the theoretical probability of selecting a green marble?
9. There are five cab drivers for a company. When a person calls, a driver is chosen at random to pick the person up.
- If there are 120 calls during a day, how many calls is Driver 4 expected to take?
 - To simulate the situation, names are put into a hat. The results from pulling a name out of a hat are shown in the table. How do the results from the simulation compare to the expected number of calls Driver 4 takes?

Simulation Results					
Driver 1 (1)	Driver 2 (2)	Driver 3 (3)	Driver 4 (4)	Driver 5 (5)	Total
29	31	20	19	21	120

10. There is a deck of flashcards and each card has a different number ranging from 1 to 40. Find the theoretical probability of the event $P(\text{the number is less than } 24)$ when picking from a deck of flashcards.